

The wasp returned to the same site after about ten minutes and repeated the process. It first flew around, touched a few objects and casts and finally chose the same cast for kneading the mud-ball. It is presumed that the wasp, during the construction of its nest, flies out in search of a suitable earthworm cast and that, after having found one, marks the cast and the objects around and leading to the nest with trail marking pheromones which guide it, perhaps also along with the visual landmarks, repeatedly to the same cast.

Casual observations made for a few days (September 12-16, 1967) revealed that the number of visits made by the wasp to the cast is much greater in the forenoon than in the afternoon. This may be because the fresh casts are moist and softer in the forenoon. The fresh and moist worm casts are sticky and fine grained and should constitute a very good and convenient source of mud for the construction of the wasp's nest.

DEPARTMENT OF ZOOLOGY,
MALABAR CHRISTIAN COLLEGE,
CALICUT-1,
July 14, 1968.

A. B. SOANS
J. S. SOANS

23. STUDIES ON INDIAN ICHNEUMONIDAE (HYMENOPTERA PARASITICA)

(With a text-figure)

This paper describes species belonging to the vipionid genus *Apanteles* collected from the Marathwada region of Maharashtra State and contains new records of eleven species and the description of a new species, *Apanteles parbhani*. Host species are mentioned, as far as possible, to make the paper more useful for ready reference. I take this opportunity to thank Dr. Mehdi Ali, Professor of Zoology and the authorities of the Marathwada University, for all facilities in the preparation of this paper.

The type specimens and the slides are presently in the collections of the author and will be deposited in the collections of the Zoological Survey of India.

***Apanteles bosei* Bhatnagar 1948**

MATERIAL : 1♀ SNR Coll., at light, Aurangabad, 14.ix.66.

Distribution: Bihar.

Hosts: *Amsacta moorei* (Butl.), *A. lineola* Fabr., (Arctiid moths).

Apanteles calycinae Wilkinson 1928

MATERIAL : 1♂ SNR Coll., at light, Aurangabad, 9.vii.1966.

Distribution: Dehra Dun (U.P.), Thana District (Maharashtra), and Pusa (Bihar).

Host: *Acrocercops simplex* Meyr. (Lithocolletid moth).

Apanteles exelastisae Bhatnagar 1948

MATERIAL : 1♂ SNR Coll., at light, Aurangabad, 20.xi.65.

Distribution: Agra (U.P.), Pusa (Bihar).

Host: *Exelastis liophanes* Meyr.

Apanteles flavipes (Cameron 1891)

MATERIAL : 1♂ SNR Coll., at light, Aurangabad, 28.viii.66.

Distribution: Poona (Maharashtra), Pusa (Bihar), Delhi and Lower Burma.

Hosts: *Argyria sticticraspis* (Hamp.), *Cirphis unipunctata* (Haw.), *Chilo simplex* (Butl.), *Syrphus* sp.

Apanteles glomeratus (Linn. 1758)

MATERIAL : 1♂, 1♀; SNR Coll., at light, Aurangabad, 14.ix.66.

Distribution: Dehra Dun (U.P.), Pusa (Bihar), Shillong (Assam), Europe, America.

Host: *Pieris brassicae* L.

Apanteles jhaverii Bhatnagar 1948

MATERIAL : 1♂ SNR Coll., at light, Aurangabad, 14.ix.1966.

Distribution: Dhulia (Maharashtra).

Host: Noctuid moth, *Cosmophila erosa* (Hübner).

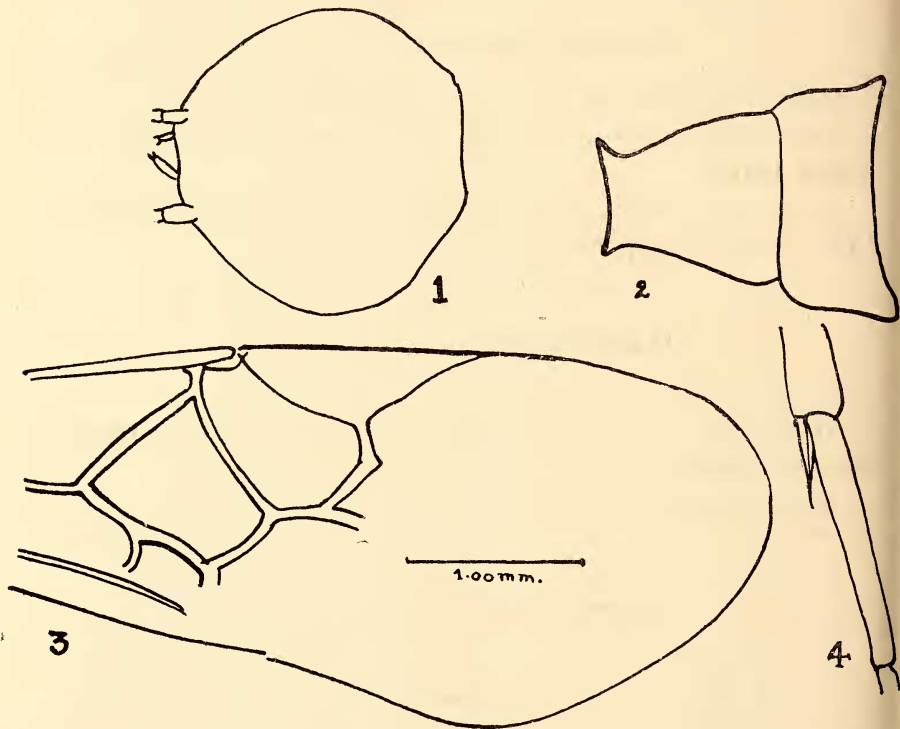
Apanteles longitergiae Rao & Kurian, 1950

MATERIAL : 1♀ SNR Coll., at light, Aurangabad, 4.iii.66.

Distribution: Agra (U.P.)

Apanteles parbhanii sp. nov.

♂ ♀ Black. Head viewed from above: half as long as wide, inter-orbital space three-fifths the width of the head; inter-ocular space three-fifths the ocellular, front ocellar space less than half the inter-ocular, dark blackish-brown, very faintly punctate, occiput slightly concave, smooth and shining; viewed from front (fig. 1) fully circular, face below antennae sparsely setose, minutely punctate, inner orbital border straight, inter-orbital space uniform, eyes naked; viewed from side: nearly half as deep as high, post-orbital space less than half the depth of head. Antennae blackish-brown, longer than body with 18 segments, inserted in the middle of face, antennal segments cylindrical, with a band-like constriction in the middle. Palpi pale yellow, quadriarticulate.



Figs. 1. Head front view; 2. Anterior part of abdomen; 3. Fore wing; 4. Hind tibia with spurs.

Thorax black, depressed, wider between the tegulae than high, slightly wider than head, mesonotum coarsely punctate, posteriorly more shallowly, scutellum with indistinct punctae, almost smooth, tegulae black, propodeum with a median longitudinal carina, meso-

pleura nearly smooth. Wings (fig. 3) hyaline, two and a half times as long as broad, fairly setose, veins pale blackish-brown, pterostigma of the same colour as the veins, slightly shorter than R_1 , r a little more than half the breadth of pterostigma, four-fifths the length of $r-m$, equal to M_1+2 , $r-m$ slightly shorter than M_3+4 , legs yellow, hind coxae black for the proximal three-fourths, apical quarter yellow, nearly smooth, extreme tip of tibiae and tarsi slightly darker, rest of the legs yellow; hind tibiae with two unequal spurs (fig. 4), longer spur nearly one-third the length of metatarsus, shorter spur four-fifths the longer spur.

Abdomen (fig. 2) as long as thorax, first tergite pale black, coarsely and irregularly punctate, broadest at apex, length a little more than the maximum breadth, second tergite yellow, not as long as but broader than first, more sparsely punctate than first, rest of the tergites black, smooth, dull. Ovipositor short.

Length both sexes 1.88 mm.

Holotype one female and *allotype* one male on slides and paratypes both males and females in spirit labelled 'Reared from cocoons collected on Jowar plant, Parbhani Agricultural College Fields, 9-x-1966, collected by students and Rao'.

Host: Cirphis unipunctata (Haw.)

This species does not agree with either *A. cirphicola* Bhat. (1948) or *A. flavipes* (Cameron 1891). It differs from the former in the details of the head, thorax and wing and also the scutellum being rugosely punctate. This species also differs from the latter in the details of the wing and thorax and is differentiated from *A. rufficus* (Haliday 1835), another parasite of the same host on the same plant in the presence of the propodeal costulae.

***Apanteles platyptilliae* Rao & Kurian**

MATERIAL: 1♂ SNR Coll., on wing, Aurangabad, 10.x.66.

Distribution: Pusa (Bihar).

Host: *Platyptilia taprobanus*.

***Apanteles ricini* Bhatnagar 1948**

MATERIAL: 1♂ SNR Coll., on wing, Aurangabad, 10.iii.66.

Distribution: Travancore (Kerala).

Host: Arctiid moth, *Arctia (Pericallia) ricini* (Fb.)

Apanteles ruficrus (Haliday 1835)

MATERIAL : 1♂ SNR Coll., on wing, Aurangabad, 15.iii.66.

Distribution: This cosmopolitan species was previously recorded from a number of places in India: Agra, Dehra Dun (U.P.), Coimbatore (Madras), Cuttack (Orissa), Hyderabad (A.P.).

Hosts: The species has a very wide range of hosts: *Cirphis loreyi* (Dup.), *C. unipunctata* (Haw.), *Heliothis armigera* (Hubn.), *Hypsipyla robusta* (Moore), *Naranga diffusa* (Walk.), *Perigea capensis* (Guen.), *Phytometra* sp., *Plusia orichalcea* (Fabr.), *Sesamia calamistis* (Hmps.), *S. cretica* (Led.), *Spodoptera mauritia* (Boisd.).

Apanteles taprobanae (Cameron 1891)

MATERIAL : 2♀♀ SNR Coll., on wing, Aurangabad, 27.xi.1966, (in spirit).

Distribution: Pusa, Ranchi (Bihar), Bangalore (Mysore), Ceylon, Formosa, Java.

Host: *Stauropus alternus* (Walk.).

READER IN ZOOLOGY,
MARATHWADA UNIVERSITY,
AURANGABAD,
July 4, 1967.

S. N. RAO

REFERENCES

- BHATNAGAR, S. P. (1948) : Studies on *Apanteles* For. (Vipionidae : Parasitic Hymenoptera) from India. *Indian J. Ent.* **10** : 133-203.
- CAMERON, P. (1891) : On some Hymenoptera parasitic on Indian injurious insects. *Mem. Proc. Manchester Phil. Soc.* **4** : 285.
- (1897) : Contribution to the knowledge of Hymenoptera of the Oriental Zoological Region. *ibid.* **41** : 38- .
- (1913) : On the Parasitic Hymenoptera reared at Dehra Dun, Northern India from the lac (*Tachardia*) and sal insects. *Indian For. Rec.* **4** : 91-110.
- MUESEBECK, C. F. W. (1921) : A revision of the North American species of Ichneumon flies belonging to the genus *Apanteles*. *Proc. U.S. nat. Mus. Washington* **58** : 483-576.
- (1926) : A new ichneumon fly of the genus *Apanteles* from the Death's Head Moth *Acherontia styx*. *J. Bombay nat. Hist. Soc.* **31** : 726.
- *et al.* (1951) : Hymenoptera of America north of Mexico. *U.S. Dept. Agric. Mong.* pp. 89-409.
- RAO S. N. & KURIAN, C. (1950) : Descriptions of eleven new and records of fifteen known species of Ichneumonidae (Hymenoptera Parasitica) from India —Part I. *Indian J. Ent.* **12** : 167-190. Pt. II, **13** : 65-78 (1951).
- RAO, S. N. (1953) : Notes on some parasitic Hymenoptera from India, with the description of a new species, *Apanteles epijarbi*. *Indian J. Ent.* **15** (1) : 23-28.
- (1961) : Key to the Oriental species of *Apanteles* For. (Hymenoptera). *Proc. nat. Acad. Sci. India.* **31** (1) : 32-45.
- WATANBE, C. (1932). A revision of the Braconid species parasitic on the injurious insects of rice plant and sugar cane in Japan and Formosa. *Trans. Sapporo nat. Inst. Soc., Sapporo* **12** : 63-72.
- WILKINSON, D. S. (1928) : A revision of the Indo-Australian species of the genus *Apanteles*, Parts I & II. *Bull. ent. Res.* **19** : 79-105, 190-246.
- (1932) : A revision of the Ethiopian species of the genus *Apanteles* (Hymenoptera : Braconidae). *Trans. ent. Soc. London* **80** : 301-344.
- (1934) : On some *Apanteles* (Hymenoptera : Braconidae). *Stylops, London* **1** : 139-144.